



## Air Force Research Laboratory | AFRL

*Science and Technology for Tomorrow's Aerospace Forces*

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### **Success Story**

## **Federal Lab Consortium Award for Excellence in Technology Transfer**



#### **Payoff**

In recognition of the transfer of Aero Propulsion and Power Directorate's engine vibration and diagnostic technology to a commercial application, a team led by Dr. William A. Troha was presented a 1994 Federal Laboratory Consortium Award for excellence in Technology Transfer. The cost savings to both commercial airlines and the military, resulting from reduced engine removals from on-the-wing operation and inherent test cell running, had given the portable gas turbine vibration diagnostic and balancing production unit, identified as PBS 4100, a competitive position in the international market.

#### **Accomplishment**

Dr. William Troha of the Aero Propulsion and Power Directorate and Messrs. Rick Rio and Dave Kennison from Mechanical Technology Inc. (MTI), Latham NY, were recipients of a 1994 Federal Laboratory Consortium Award for Excellence in Technology Transfer for their dedication and

perseverance in the transfer of gas turbine vibration diagnostic and balancing technology into portable, world-class production unit competitively sold internationally. The consortium's annual award for excellence in technology transfer is given to a select number of individuals who demonstrate their commitment by actively working to transfer a technology or process to the public or private sector.

## Background

The engine vibration and diagnostic technology developed by Dr. Troha was initially identified as the Automatic Vibration and Diagnostic (AVID) system and was introduced into test cells nine years ago at Oklahoma City and San Antonio Air Logistic Centers (roughly two 6 foot high electronic racks -- to large for portable application). They are still in use today. A portable prototype unit was released in 1988, which coupled the AVID system with capabilities of advanced personal computers. In the early 1990's, MTI introduced an upgraded Portable Balancing System, based on AVID system technology, identified as the PBS 4100. In addition to a balancing capability, the PBS 4100 incorporates a full range of diagnostic capability to identify engine vibration problems resulting in reduced maintenance time and effort. Before the development of this technology, a typical engine going through checkout after being overhauled would require an average of 4 run-times before meeting vibration limit tolerances. With the demonstration of the technology, this process was reduced to one engine run-time, resulting in a cost reduction of a factor of 4. The development of the commercial PBS 4100 system by MTI has established a new industrial standard and is providing significant cost savings to both commercial and military users. Airlines have reported cost savings associated with improved on-the-wing engine maintenance, aircraft not being removed from scheduled flights, reductions in engine run-time and fuel consumed and the number of engines not being shipped to a main base for balancing.



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## Additional information

To receive more information about this or other activities in Air Force Research Laboratory Propulsion Directorate, contact [Kristen Schario](#), AFRL/PROP, (937)255-3428 and you will be directed to the appropriate Laboratory expert. (00-PR-02)